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OECD PRINCIPLES ON WATER GOVERNANCE IN PRACTICE

An assessment of existing frameworks in Europe, Asia-Pacific, Africa and South America

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OECD PRINCIPLES ON WATER GOVERNANCE IN PRACTICE

An assessment of existing frameworks in Europe, Asia-Pacific, Africa and South America

Abstract: Through the lens of the 12 OECD Principles on Water Governance, this paper examines six water resources and water services frameworks in Europe, Asia-Pacific, Africa and South America to understand enhancing and constraining contextual factors. We use qualitative and quantitative methods to analyse each framework against four criteria: *alignment*; *implementation*; *on-ground results*; and *policy impact*. We identify four main target areas for improving water governance: policy coherence; financing; managing trade-offs; and ensuring integrity and transparency by all decision-makers and stakeholders. We present suggestions to support practical implementation of the principles through better governmental action and stakeholder involvement.

Keywords: OECD Principles; water governance; Likert Scale; multi-level assessment

PART I – INTRODUCTION AND OBJECTIVES

1.1. Objectives of this paper and expected results

This article explores the extent to which a selection of existing water governance frameworks align with the 12 Principles on Water Governance, released by the Organisation for Economic Co-operation and Development (OECD) in 2015. The article identifies factors that enable or constrain the progress of different water governance approaches in different regions of the world, by analysing how well a set of existing frameworks provide conditions for effective implementation of the OECD Principles. This analysis of what influences the implementation of the OECD Principles provides a basis for further recommendations, in relation to both water resources and water services.

We examine six frameworks with different characteristics that were chosen in order to consider the OECD principles in a wide range of different contexts. We include four national water policy frameworks (Australia, Brazil, New Zealand and South Africa), one transnational water policy framework (Europe) and one global guideline (Lisbon Charter, using the example of Portugal), each with a different focus. For example, the EU Water Framework Directive (WFD) was established with the main objectives of building a comprehensive legal framework for water quality and re-establishing ecological integrity; the main driver of South Africa's water policy was initially to rebalance access to water in the post-apartheid period; whereas a higher aim of Brazil's water policy has been to democratise water management. While all the frameworks address the three main drivers of water governance (effectiveness, efficiency, and trust and engagement), some weightings are evident. For example, the New Zealand and South African water policy frameworks, and the Lisbon Charter, are weighted towards regulatory effectiveness, the WFD and Australia's National Water Initiative (NWI) towards increasing efficiency, and Brazil's Water Resource Management Policy towards building trust and engagement. Lessons from the UNESCO-IHP Hydrology for the Environment, Life and Policy (HELP) programme (UNESCO, 2010), which has been influential in some of the countries analysed, were implicit in the assessments and conclusions drawn.

As the OECD Principles refer to water resources and water services, it is useful to note that the European WFD and the cases of Australia, New Zealand and Brazil are more focused on water resources, the case of South Africa focused both on water resources and water services, and the Lisbon Charter (using the example of Portugal) is more focused on water services. Our main aim was not to compare the frameworks with each other, but to compare their 'performance' against the 12 OECD Principles. We designed criteria specifically to obtain a clearer diagnostic of the synergies, opportunities and constraints to implementation for each framework. Based on this, we make recommendations for more effective implementation through better context-focused governmental action and stakeholder involvement in relation to the OECD principles.

1.2. Background to the OECD Principles on Water Governance

The concept of 'water governance' gained prominence in recent years due to concerns over water as a societal risk, triggered by increased competition of use in a context of change (Woodhouse and Muller, 2016). Scholars have canvassed diverse views of water governance ranging from institutional analysis (Jager et al., 2016), to adapting managerial theories to environmental learning (Pahl-Wostl, 2009), and leadership (Meijerink and Huitmema, 2010; Taylor, et al., 2015). Some scholars question meso-scale policies while advocating global evaluation indicators (Biswas and Tortajada, 2010); others call for context-specific criteria in water governance (Akmouch and Correia, 2016; Correia et al., 1999).

In this article we adopt the practitioner-oriented definition of water governance developed by the OECD:

> *"Water governance is the set of rules, practices, and processes (formal and informal) through which decisions for the management of water resources and services are taken and implemented, stakeholders articulate their interest and decision-makers are held accountable" (OECD, 2015a).*

Akmouch and Correia (2016) reviewed the work done by OECD in recent years on water governance and discussed the development and application of the 'OECD Principles on Water Governance' (Fig. 1). The Principles were developed by the OECD Water Governance Initiative (WGI), a multi-stakeholder platform of over 100 delegates from public, private and non-profit sectors, to support collective action to scale up governance responses to water challenges. The 12 Principles are presented in Appendix 1.

Figure 1. Overview of OECD Principles on Water Governance (OECD, 2015a)

The Principles are clustered around three main drivers – effectiveness, efficiency, and the ability to generate trust and engagement, defined as follows by the OECD (2015a):

> ”*Effectiveness* relates to the contribution of governance to define clear sustainable water policy goals and targets at all levels of government, to implement those policy goals, and to meet expectation targets.
>
> *Efficiency* relates to the contribution of governance to maximize the benefits of sustainable water management and welfare at the least cost to society.
>
> *Trust and engagement* relates to the contribution of governance to building public confidence and ensuring inclusiveness of stakeholders through democratic legitimacy and fairness for society at large”.

Since adoption, 42 countries and more than 140 major stakeholder groups have endorsed the Principles. Work is now underway through the WGI to develop indicators and assess good water governance practices.

1.3. Assessment methodology

Six frameworks were included in the analysis, selected on the basis that the authors had strong familiarity with them and/or sufficient published information was available. Each framework was considered in relation to the 12 OECD Principles using four criteria: (i) *alignment*; (ii) *implementation*; (iii) *on-ground results;* and (iv) *policy impacts.* A Likert scale ranging from 1 (minimum) to 5 (maximum) was used (Table 1) and the descriptors used to guide the assessments are fully detailed in Appendix 2. Assessments apply at the present time, while recognising that criteria (ii, iii and iv) may be work in progress.

Table 1. Adapted Likert Scale for scoring each policy framework

Score	***(i) Alignment***	***(ii) Implementation***	***(iii) On-ground Results***	***(iv) Policy Impact***
1	No alignment	No implementation	No evidence of change	No impact
2	Poor	Poor	Poor	Poor
3	Moderate	Moderate	Moderate	Moderate
4	Good/strong	Good/strong	Good/strong	Good/strong
5	Full alignment	Full implementation	Major change evident	Very strong impact

The author responsible for each case-study used public information and expert opinion to identify patterns that could increase our understanding of what factors might enhance or constrain implementation of the OECD principles. All of the authors contributed to drawing out common messages that might explain the patterns in order to draw conclusions and make suggestions on how water governance can be improved in practice.

1.4. Presenting the frameworks of water governance

1.4.1. European Water Framework Directive

Facing the inadequacy of the European Community legislation relating to the protection of waters then currently in force, the European Commission presented a draft Directive (EC, 1993) on the ecological quality of waters in 1994. A real change of paradigm was evident, changing from the earlier rationale of public health and the preservation of competition conditions in the common market to a global vision of the environment which Europe pledged to protect and enhance in order to ensure its long term sustainable development (Correia, 2003). Sustainability was the key-word for this paradigm shift. This new framework for action, approved for Europe in 2000, brought into management a new perspective which was more comprehensive and integrated in qualitative and quantitative terms, as well as addressing ecological and socio-economic aspects.

The WFD precipitated a fundamental change in management objectives from merely pollution control to ensuring ecosystem integrity as a whole (Hering et al., 2010). However, as noted by Jager et al. (2016), this has been accompanied by a '*diversity of institutional approaches*' and that '*overall, the WFD has driven a highly uneven shift to river basin-level planning among member states*' while at the same time instigating '*a range of efforts to institutionalize stakeholder involvement*'.

The development framework of the management policies of the WFD is set at the scale of river basins defined by topographical boundaries, regardless of the territorial and administrative boundaries of the Member States. The WFD defines a river basin district, which is the main management unit for river basins, as '*the area of land and sea constituted by one or more neighbouring river basins and by underground and coastal waters associated to them*'. The environmental objectives for the different types and categories of water bodies mandate that each Member State shall conduct a characterization of the river basin district, an environmental impact analysis of human activity and an economic analysis of water use. The status of implementation of the WFD through the river basin planning process, updated for 2016, is presented in Fig. 2.

Arguably, the WFD was a "top-down" approach to implementing catchment management, with objectives and instruments set through formal legislative and regulatory processes, and steered by higher governmental organisational levels. Even if the involvement of stakeholders is promoted, the planning process is geared to support the achievement of WFD objectives rather than to respond to broader societal demands (Rouillard & Spray, 2016; Blackstock et al., 2015; Keesen et al., 2010; Hendry, 2014). But it is undeniable that this framework brought a new comprehensive approach to water management, and one that attempts to integrate it with the ecological, social and economic dimensions (Spray and Comins, 2011). Whilst reaction to the tensions of top-down and bottom-up approaches remains, for example within England and Wales, the recent rise of the Catchment-based

Approach, led by NGOs and others in partnership with agencies and other statutory bodies, has been a welcome new development.[i]

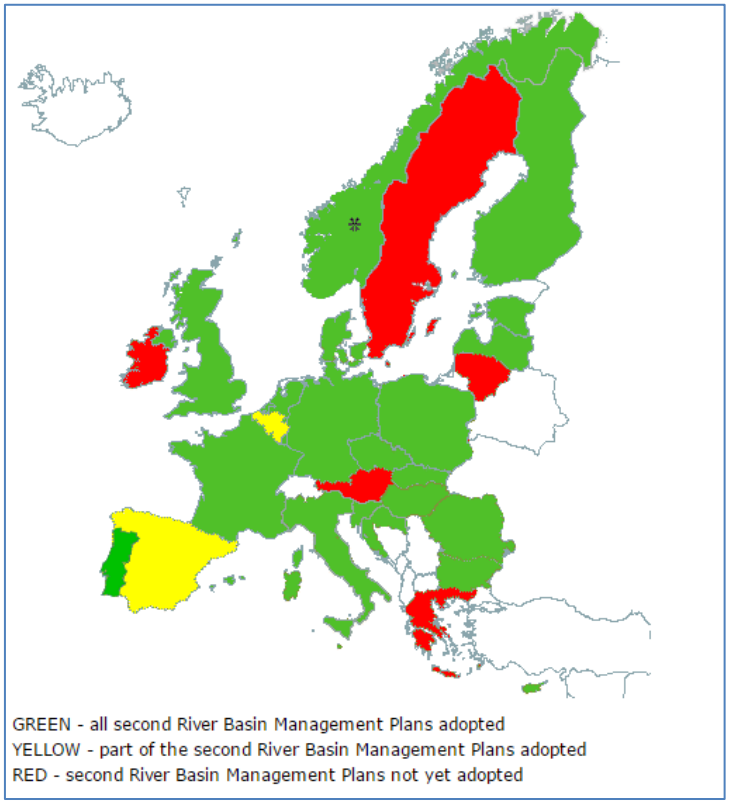

Figure 2. Implementation status of the WFD in Europe (EC, 2017)

1.4.2. Australian National Water Initiative

Australia has an infamous boom and bust water economy, cycling through drought and floods. In the early years of colonisation by the British this produced a developmental paradigm supporting irrigation in the inland parts of the continent (Lloyd, 1988, Powell, 1989; Pigram, 2006; Connell 2007). However, intensive use left an "indelible mark on Australia's river systems" and the natural environment (Pigram, 2006, p. 61).

Australia's first national water reform occurred in 1994 to address flaws in the regulatory framework (Tan, 2002; Hussey and Dovers, 2007). The administrative allocation of water had systemic problems stemming from the adoption of English common law concepts of water (Tan, 2002), and in a development era, bureaucrats used their powers to promote water use and politicians to promote their power base (Chenoweth, 1998). Consideration for ecosystems in water management was almost non-existent until a blue-green algal bloom along the Darling River of 1992 made it obvious to politicians and the community alike that a crisis could no longer be ignored (Smith, 1998).

Under the Australian Constitution, state and territory governments have primary authority over water, thus national reform can only be undertaken collaboratively through the Council of Australian Governments (CoAG) (Kildea and Williams, 2010). Between 2004 and 2005 all Australian states

signed the NWI, placing primary responsibility for implementing the agreement's reform agenda with the state and territory governments, with support from the Australian Government.[ii]

Commentators such as Connell et al. (2006) argue that the NWI's primary goal is sustainable management of water, as seen in the triple bottom line statement in Fig. 3, yet most of the measures in the NWI relate to water entitlements. The establishment of nationally-compatible water access entitlements to facilitate the operation of water markets within and between jurisdictions required changes in water legislation and implementation through state-based statutory water planning processes incorporating public participation of varying degrees (Gentle and Olszak, 2007; Tan et al., 2012).

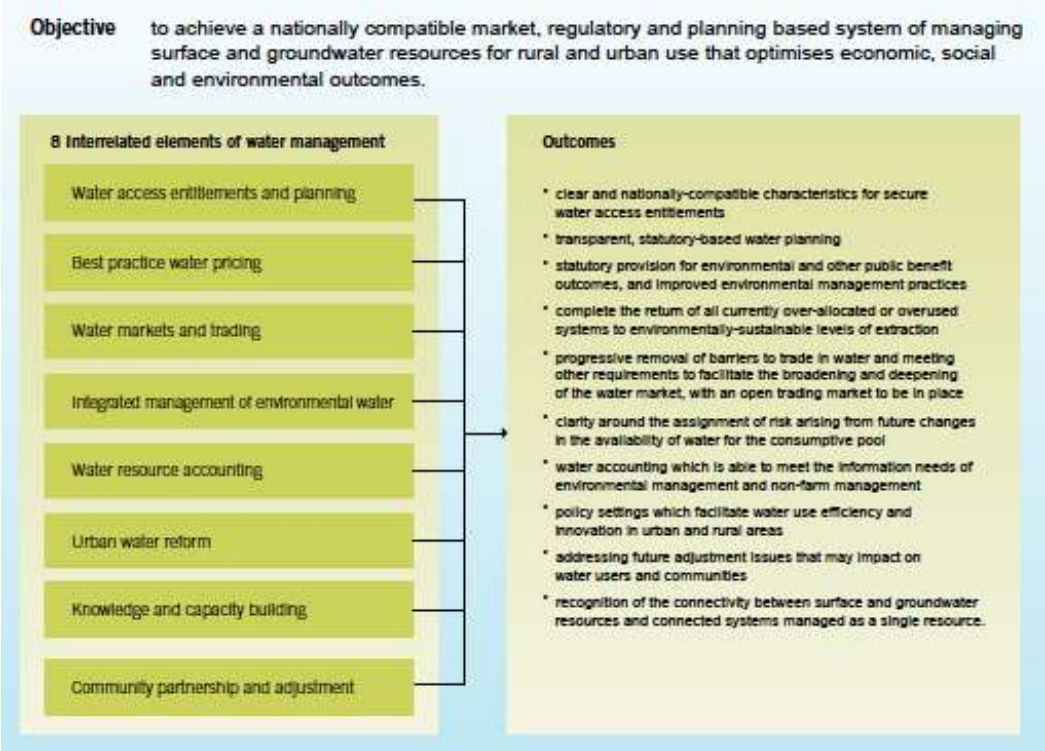

Figure 3. Objective, elements and outcomes of Australia's NWI (NWC 2014a)

Driven by the NWI, other institutional reforms were undertaken through the Water Act 2007 (Cwth) that set up the Commonwealth Environmental Water Holder (CEWH) and the Murray Darling Basin Authority (MDBA), both with statutory obligations. Community engagement over the MDB Plan 2012 was a key issue (Evans and Pratchett, 2013; Tan and Auty, 2017). Indigenous interests were acknowledged for the first time in water policy in the NWI (Tan and Jackson, 2010). This has led to stronger requirements in the Water Act 2007 (Cwth) requiring water plans in the MDB to articulate and provide for Indigenous values in water.

Additionally, a statutory watchdog - the National Water Commission (NWC) - played a critical role in providing guidance for policy making and assessed implementation of water governance and planning. Until the NWC was abolished in early 2015 it carried out four assessments of implementation of the NWI, with the final assessment covering the period from 2004 to 2014 (NWC, 2014a), together with separate report cards on environmental management of water (NWC, 2010) and the implementation of water plans across eight criteria (NWC, 2014b). The NWC's 2011 in-depth assessment of water governance found that the NWI had delivered significant benefits by providing

direction for reform but also noted that the major goals of sustainable management and efficiency were yet to be met. The Productivity Commission will now assess water reform and is expected to recommend future reform priorities in late 2017.

1.4.3. New Zealand Water Policy

Management of freshwater in New Zealand's rivers, lakes and aquifers is governed under its 1991 Resource Management Act (RMA) the purpose of which is 'to promote the sustainable management of natural and physical resources'. New Zealand has one of the most devolved water governance regimes in the world (Fenemor et al., 2006) and one of the first to give legal recognition to Indigenous rights for water, for example in the Waikato and Whanganui catchments (Ruru, 2013; Salmond, 2014).[iii] Sixteen regional authorities, whose boundaries mainly follow catchment boundaries (Fig. 4), are governed by locally elected councillors and have primary responsibilities including management of water allocations, water quality management, and flood management.

Figure 4. New Zealand regional councils

Catchment-based river management began in New Zealand with the 1941 Soil Conservation and Rivers Control Act, which set up catchment boards, predecessors to today's regional councils. The 1991 Resource Management Act largely carried over the water management regime from the 1967 Water and Soil Conservation Act, but introduced a statutory planning regime allowing councils through a hearing process to develop and enforce legally binding objectives, policies and rules at a relevant catchment or regional scale ('regional plans').

Water is managed as a public good. Regional plans are commonly developed at large catchment scale, and are increasingly regulating not just water use but also land uses such as intensive dairy farming which are causing increasing diffuse pollution of water bodies (Duncan, 2014; Monaghan et al., 2008).The New Zealand government was criticized for its lack of national support to guide implementation during the first 15 years of the RMA, including the lack of national policy statements or national environmental standards (Jackson et al., 2007). This situation is now being improved. Since 2010, a national Land and Water Forum has used a collaborative approach to recommend methods for setting and managing water within catchment limits (e.g. LAWF, 2012). Collaborative approaches to catchment planning are now being implemented throughout New Zealand (Fenemor et al., 2011; Rouse et al., 2016) with many plans in their second decade of implementation, and giving greater weight to Māori cultural values (Harmsworth et al., 2011). Public concerns over declining water quality in lowland rivers, Māori calls for a greater role in water governance, and calls for resource rentals to be paid especially for water exports have raised water governance to a national political issue (Fenemor, 2017).

1.4.4. Brazilian National Water Policy

The National Water Resource Management System (SINGREH) of Brazil was created in 1997 through the Federal Water Law 9433. This law represented the turning point for water management in Brazil by replacing the former Water Act of 1934, defining its Policy (principles, objectives, management instruments and institutional framework) and driving the country to a water reform.

The 1997 Water Law addresses six principles for water management: water is a public good; water is a limited resource with economic value; the priority is for human consumption in water shortage periods; water management must promote multiple uses of water; water is to be managed at river basin level; and water resource management should be decentralized and consider participation by users, communities and government. Five management instruments were designed to implement these principles: water plans; water permits; a system for classification of water bodies according to their water quality; bulk water fees and an information system on water resources.

There are three scales for water planning in Brazil: national; state (each state has its own water law and plan which should consider national guidelines) and basin. At the basin scale, two water management domains exist: national/federal or state river basins. When a river crosses more than one state and one of its tributary basins is totally within a state area, this sub-basin is subject to state domain. There are some reservoirs built by the federal government, where the stored water is in federal domain, even in basins under state control. Federal and state domains relate to surface water only. The state domain is always applied for groundwater management under a determination made by the 1988 Federal Constitution.

The SINGREH is responsible for operating the National Water Resources Policy.[iv] At the national level it includes: the National Water Resource Council (responsible for elaborating national guidelines); the National Water Agency - ANA (a federal agency for implementing water management at national level); and federal river basin committees (participatory and decentralized management bodies). At the state level, corresponding entities apply. The river basin committees are consultative, normative and deliberative bodies, and composed of elected representatives of civil society and of water users and appointed government representatives. Water conflicts are to be arbitrated in first instance at the basin committee. These bodies are intended to implement one of the main principles stated by the 1997 Federal Water Law: a decentralized and participatory approach to guide a bottom-up water policymaking. However, during these last twenty years, it is observed that the governmental sector has had difficulties sharing power (at federal and state levels).

1.4.5. South African National Water Policy

Water has been an integral component of the political realm in South Africa since the 1930s when, following the "Great Depression" major irrigation schemes were set up to employ so-called "poor whites". From the 1950s, water represented one of the technological flagships for the apartheid government at the time, with water engineered systems dominating the legal, policy and decision-making landscape. Following the advent of a democratic government in South Africa in 1994, the 1956 Act was repealed and replaced with two Acts, the Water Services Act of 1997 (WSA) and the National Water Act of 1998 (NWA). The NWA deals with the management of water resources as a constitutional responsibility of the National Government (Fig 5).

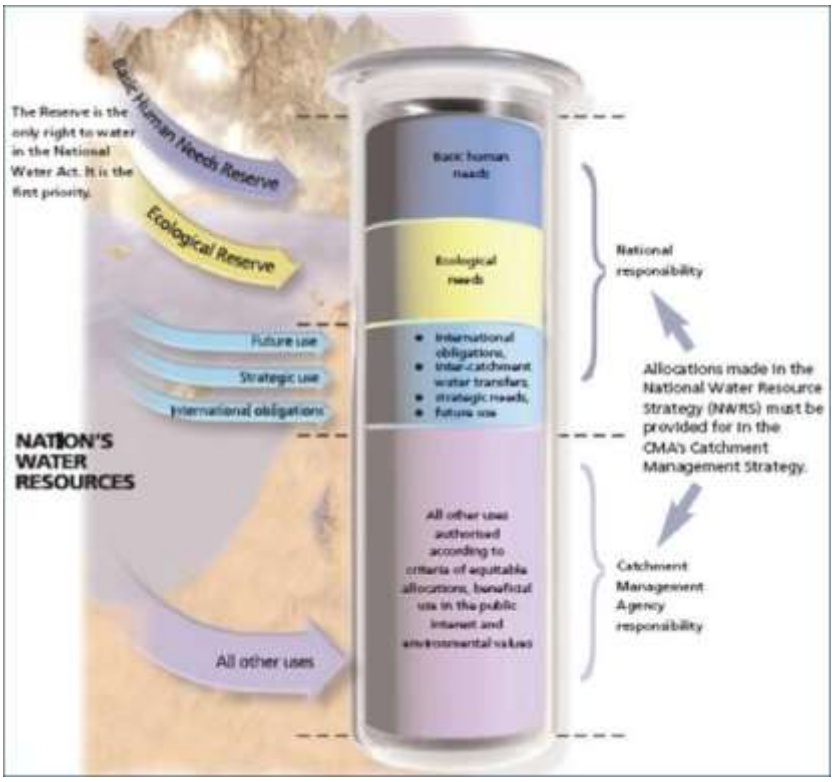

Figure 5. Concepts encapsulated by the National Water Act of South Africa (de la Harpe & Ramsden, 1998)

The WSA also deals with the provision of water supply and sanitation services, which are the constitutional responsibility of Local Government. It is important to note that these two Acts have been re-written completely and follow, in most areas, diametrically opposed principles to what existed in the old South African water legislation. Water resources are allocated via a system of free use (uncharged), of general authorisation and of licensing. Water for the so-called "Reserve" (i.e. the Human Health Reserve and the Ecological Reserve), as well as "Strategic Uses", is allocated before that for any other users.

The National Water Resource Strategy (2004, updated in 2013) and the various Catchment Management Strategies (CMS) guide implementation of the NWA. While the aims of both the NWA and WSA were decentralisation of water management, only two Catchment Management Agencies (CMA), and a handful of Water User Associations (WUA) have been established to date.

In the past five years there has arguably been a move towards re-centralisation, demonstrated by, *inter alia*, a reduction from the original 19 Water Management Areas (WMA) to nine, and retention of water licensing within the National Department of Water and Sanitation rather than moving to the CMA level as was originally intended. In many ways the Constitution (i.e. providing for a right to water), on the one hand, and the apartheid legacy (i.e. lack of water services and access to water to the masses), on the other, are now seen as drivers within the water sector. Water has not only been politicised, it has also become a highly emotive public topic, leading to unrest and riots on an annual basis in different areas of the country. It is important to note that while the main focus of water planning and management in the past decades has been on water quantity issues, water quality is an increasing problem. While the framework for good water governance in South Africa exists, the realities on the ground do not match it. Indeed, the Water Tribunal, an independent body established in 1998 to hear appeals against directives and decisions made by responsible authorities, catchment management agencies or water management agencies about matters covered by the NWA, has hardly ever been used.

1.4.6. Lisbon Charter

Internationally there is increasing recognition of the importance of an enabling environment for the delivery of essential drinking water, sanitation and wastewater services through formulating good public policy and establishing effective regulation. The International Water Association (IWA) has brought together a range of stakeholders to take collective action and provide an international framework for adaptation into national legislation, regulation and practices.

Motivated by the challenges faced by many countries in improving the water supply and sanitation situation, and the chasm between willingness to change and real change in the field, in January 2015 the IWA adopted the Lisbon Charter[v] to guide the public policy and regulation of drinking water supply, sanitation and wastewater management services around the world.

The Lisbon Charter relies on the following fundamental elements: water services are fundamental to the health of communities; they are essential to the sustainable socioeconomic development of society; they have been recognised as human rights; governments must ensure water services provision in compliance with their international commitments as well as commitments to their own people; with that goal, governments should foster good public policy and effective regulation.

The Charter endorses responsibilities for governments and public administration regarding adoption of strategic plans, strengthening legal frameworks and designing regulatory frameworks. Among others, it advocates realistic and measurable targets, reliable information, diverse financial and fiscal measures and, in general, an improvement of the structural efficiency of services to develop the water sector and promote awareness and participation of users. It also includes recommendations about the responsibilities of regulatory authorities, service providers and users. Finally, the Charter recommends, as common responsibilities, that all stakeholders should have an ongoing and open dialogue, and should share information.

The Lisbon Charter principles and the OECD principles are fundamentally matched. In this analysis, and in order to ensure an operational focus, we have used the reform of water services in Portugal, which complies with the Lisbon Charter principles, as an illustration and demonstration of that strong match. The Portuguese implementation of water services is notable, not only regarding the accessibility and quality of drinking water supply and waste water management, but also with respect to the subsequent impact on environmental quality and public health. Considering the integrated approach of water resources and water services that underlines the OECD principles, this case is a good illustration of the benefits the OECD Principles on Water Governance can bring to water services as well.

PART II – ASSESSMENT AND ANALYSIS

2.1. Results and findings of each framework assessment

The results of the assessment (scoring 1 to 5) of each water policy framework against the four criteria (*Alignment*, *Implementation*, *On-ground Results*, and *Policy Impact*) for each of the 12 OECD Principles are shown in Appendix 3.

Key findings for each policy framework, drawn from those results, are presented below.

2.1.1. European Water Framework Directive

The principles and guidelines of the WFD are, in general, well aligned with the OECD Principles. There are some specific approaches (e.g. Principles 6 on water finance and 11 on trade-offs) where there are different policy targets and spheres of activity, and the alignment scores lower.

The WFD had a strong impact in terms of imposing new regulatory and legislative frameworks within Member States, and it also enhanced more integrated approaches between environmental, social and economic dimensions. This triggered several legislative and institutional reforms, a reason why it generally scores highly for policy impact.

The criteria related to implementation and on-ground results were assessed at European level. This assessment of the WFD against the OECD Principles covers the European territory and so includes a great diversity of national specific contexts and frameworks of implementation, and consequently diverse internal policy impact. Within this first overall assessment that diversity cannot be reflected.

2.1.2. Australian National Water Initiative

In general Australia's NWI presents a strong alignment with the OECD principles.

Regarding *effectiveness*, there is evidence of the implementation of the NWI being based on adequate resourcing and an independent 'watchdog'. Rigorous participatory assessments of implementation across all sectors provide transparency and accountability. Timetables for the NWI were necessary but underplayed the complexity of the reform. Integration across water quality and quantity is not yet built into the system of decision-making.

Efficiency of the Australian framework relies on good data and information being shared across all jurisdictions. While financing has been adequate, cost-benefit analysis has not always been carried out well. While institutional reform has generally separated policy, regulation and service delivery functions, urban water governance is still lagging behind in policy development. Pricing of water remains an issue and does not reflect the full cost of delivery. Recognition of Indigenous interests in water only came about through national leadership in policy development and research with reform flowing specific provisions into state legislation, for example in New South Wales (Tan and Jackson, 2010). Further state actions intend to include Aboriginal values and traditional ecological knowledge in water planning (State of Victoria, 2016). Yet there is much to be done to build trust and engagement, including more transparent trade-offs. Reduction of "red-tape", done in the name of efficiency, has undermined trust in state government processes.

2.1.3. New Zealand Water Policy

New Zealand's Resource Management Act and catchment-based management since the 1940s created a strong basis for governance devolved to catchment and regional communities. This creates high levels of alignment with the OECD principles.

On-ground results and *policy impact* scored lower than *alignment* and *implementation* for most principles, partly because implementation of catchment-based water management plans containing water take and quality limits is in the early stages in some regions, and because of a lack of national

guidance, until recently[vi], on effective and consistent planning approaches. National guidance is now forthcoming through recommendations of the Land and Water Forum, and implementation of the National Policy Statement for Freshwater Management (MfE, 2014). However, national minimum standards for water quality are criticized as too lenient, overlooking the requirement that councils must set limits higher than those minima.

Regulatory difficulties are arising in managing diffuse pollution, especially from agriculture and urban runoff. This is essentially a land management problem due to a mosaic of land uses and requires land use policy, not just water policy. Some catchments with high levels of irrigation and urban water use in relation to naturally available water have become 'engineered flow systems' - an exemplar of the Anthropocene era (Savenije et al., 2014) - with a need for clearer legal connection between catchment management and water infrastructure planning. This reduced the scores for Policy Coherence (Principle 3) and Water Financing (Principle 6) because of differing legal and financing mandates.

2.1.4. Brazilian National Water Policy

The principles of the Brazilian Water Act and the framework for the National Water Resources Management System are well aligned with the OECD Principles. The degree of alignment scores high (5 or 4) for all OECD Principles, an exception being for Principle 12.

Twenty years after the Water Act was approved there are still gaps regarding *implementation* and *on-ground results*. For these two criteria, lower scores are found. As the country is so vast and diverse, the current status of *implementation* and *on-ground results* varies across the water planning scales.

Regarding policy impact, water reform at state and river-basin levels was induced, with water law approved in each State, which is why it scores high (4) for some of the Principles. However, in general, lower scores are achieved for policy impact, most being related to trust and engagement OECD Principles. For Principle 12 (Monitoring & evaluation) the lowest scores are found for all criteria *(alignment, implementation, on-ground results, policy impact).* The National Water Agency publishes annual reports on the Brazilian water resource situation (e.g., ANA, 2016) and there are studies on Brazilian water governance (e.g., OECD, 2015c). However, independent and regular monitoring and evaluation have not been established.

2.1.5. South African National Water Policy

South Africa's water legislation is highly innovative, and very well aligned with the OECD principles. However, its implementation is problematic, with too many changing goal posts, especially with regards to delegations from National to the catchment level. A major policy review and other activities reflect a rollback from de-centralization to re-centralization. In the past few years there have been

several *ad hoc,* highly politicized, but relatively ineffective initiatives. Some aspects are approached in a participatory manner, but often only with empowered and influential stakeholders.

While lack of clarity on co-ordination of policies in South Africa remains, particularly around responsibilities for water and environment, many other areas are now well coordinated, 20 years after the initial reforms. The South African law is very clear on sharing and open access to data and information, however, many monitoring systems are degrading, and data quality control seems to have declined. Enforcement is also difficult to assess. Citizen science is emerging strongly within water governance in many areas of the country, but it is not being recognized as a valid database by government and decision-makers.

Managing trade-offs is left to CMAs to negotiate, but only in their advisory capacity. Otherwise the licensing process happens at the national level, much removed from the area, stakeholders and impacts. Owing to continually moving goal posts and lack of decision-making, there appears to be another era of stakeholder fatigue. There is little assurance or confidence in government's ability to rectify the inequalities of the past as well as ensuring sustainable water management because the resource and environment are continuously degrading in all parts of the country.

Overall South Africa's struggle with *implementation* and *on-ground results* seems to be mainly due to political issues as well as a variety of capacity challenges in management, decision-making and stakeholder engagement.

2.1.6. Lisbon Charter

The Lisbon Charter is focused on water services. The drive to innovate public policies comes from expectations on governments to respond to new frameworks at the international level, including the Sustainable Development Goals and the Human Right to Safe Drinking Water and Sanitation.

Based on the application in Portugal, there is a strong alignment and complementarity between the OECD principles, which is more focused on water resources but also includes water services, and the Lisbon Charter, which is more focused on water services but does not disregard water resources. This alignment results from the fact that while the OECD Principles and the Lisbon Charter were developed in parallel and approved in 2015 by two different organisations, there were fruitful interactions between them.

The new public policy developed in Portugal for drinking water supply, sanitation and wastewater management services complies with the Lisbon Charter principles and provides a good example of implementation. Within the Charter frame, this public policy on water services presents on average a high degree of alignment with the OECD principles, with some variation between principles. *Alignment* is good regarding OECD principles 1, 4, 6, 9, 10 and 11, and extremely good regarding principles 5, 7, 8 and 12. However, the alignment is still insufficient regarding principles 2 on

management scales and 3 on policy coherence. It is important to note that this analysis is made from the viewpoint of water services and implementation of the Lisbon Charter principles, and not from the viewpoint of water resources management and planning policies, for which results would be different.

2.2. Discussion on the 12 OECD Principles

In this section we summarise the results of the analysis done for each OECD Principle across the six frameworks, based on the scoring presented in Appendix 3.

Principle 1 (Clear Roles and Responsibilities) - There is *strong* or *full alignment* between OECD principles and all six frameworks with respect to the need to clearly allocate and distinguish roles and responsibilities. However, *implementation* varies more widely, from *poor* to *full implementation*. *On-ground results* range from *poor* to *good*, and the *impact on policy* was assessed as *moderate* or *strong* for all frameworks.

Principle 2 (Appropriate Scales within Basin Systems) - The OECD principles and the six frameworks are in *full alignment* regarding the need to manage water at appropriate scales and to foster coordination between those scales, with *moderate* to *full implementation*. *On-ground results* are considered *moderate* or *strong* in all cases, and *policy impact* was evenly split between *moderate* and *strong*.

Principle 3 (Policy Coherence) - There is *strong* or *full alignment* for five of the six frameworks on the encouragement of policy coherence through effective cross-sectoral coordination, the other (WFD) was considered moderately aligned. *Implementation* was assessed as *moderate* or *good* for all the frameworks. *On-ground results* and *policy impact* both ranged from *poor* to *strong*.

Principle 4 (Capacity) - The need to adapt the level of capacity to the complexity of the challenges faced was assessed as *strong* or *full alignment* in five of the six frameworks, but the other (South Africa) was considered *poor*. *Implementation* is more variable, ranging from *poor* to *full implementation*. *On-ground results* were found to be generally *moderate* to *major changes evident*, although for one framework there is considered *no evidence of change*. *Policy impact* varied from *no impact* to *very strong impact.*

Principle 5 (Produce and Share Data and Information) - Five of the six frameworks were found to have *full alignment* with the OECD principle of producing, updating and sharing consistent, comparable and policy-relevant water and water related data and information, with the other considered to have *strong* alignment. *Implementation* was evenly spread between *moderate*, *strong* and *full implementation*. *On-ground results* was found to be *poor* for one framework (South Africa),

but ranged from *moderate* to *major changes evident* for the others. *Policy impact* ranged from *poor* (South Africa) to *very strong* (Lisbon Charter).

Principle 6 (Financing) - There was found to be *moderate* to *full alignment* with the OECD principle relating to water finance mobilisation, and allocating financial resources in an efficient, transparent and timely manner for all frameworks. *Implementation* was assessed as *moderate* or *good* for five frameworks. *On-ground results* were generally *poor* to *moderate*, with one framework assessed as *strong*. *Policy impact* was evenly spread between *poor*, *moderate* and *strong*.

Principle 7 (Regulatory Frameworks) - *Full alignment* with the principle of ensuring sound regulatory frameworks was identified for five of the six frameworks, with another considered to be in *strong* alignment. *Implementation* was found to be evenly spread, with two each at *moderate*, *strong* and f*ull implementation*. The results for *on-ground results* were varied, with four of the six frameworks assessed as *moderate* or *good*, one (South Africa) as having *no evidence of change* and for the other (Lisbon Charter) as *major changes evident*. *Policy impact* ranged from *poor* to *very strong*.

Principle 8 (Adopt and Implement Innovative Governance) - *Alignment* with the OECD principle of promoting innovative water governance practices was found to be *good* to *full alignment* for five of the six frameworks, with the other assessed as *moderate*. *Implementation* was considered *moderate* or *strong* for most frameworks, with one (Lisbon Charter) assessed as *fully implemented* for Portugal and one (South Africa) as *no implementation*. Similarly, *on-ground results* were considered *moderate* or *strong* for most frameworks, with one (Lisbon Charter) assessed as *major changes evident* and the other (South Africa) as *no evidence of chang*e. *Policy impact* was identified as *moderate* in four cases and *strong* for another (Lisbon Charter), but one (South Africa) was assessed as having *no impact* on policy.

Principle 9 (Integrity and Transparency) - There was found to be either *strong* or *full alignmen*t with the OECD principle of mainstreaming integrity and transparency to improve accountability and trust for all except one framework (South Africa), which was considered *moderate*. *Implementation* was much more varied, with three considered *poor*, and the other three either *moderate*, *good* or in one case (New Zealand) *full implementation*. *On-ground results* were evenly spread between *poor*, *moderate* and *strong*, and policy impact also ranged from *poor* to *strong*.

Principle 10 (Stakeholder Engagement) - All the policies were found to be in *full alignment* with the OECD principle of promoting stakeholder engagement, although there were differences in implementation, which was spread between *moderate*, *good* and *full implementation*. *On-ground results* were identified as *moderate* to *strong*, while there were considered to be *major changes*

evident in one case (Australia). Similarly, policy impact was generally found to be *moderate* or *good*, with one framework (New Zealand) assessed as having *very strong* impact.

Principle 11 (Managing Trade-offs) - *Alignment* with the OECD principle of encouraging frameworks to help manage inter-sectoral, spatial and temporal trade-offs was found to be *moderate* to *full alignment* for five of the six frameworks, but for one (WFD), alignment was considered *poor*. Similarly, *Implementation* was assessed as *moderate* or *good* for five of the frameworks, with the other (WFD) considered poor. *On-ground results* and *policy impacts* were both found to be evenly spread between *poor*, *moderate* and *strong*.

Principle 12 (Monitoring and Evaluation) - For five of the six frameworks there was considered to be *strong* to *full alignment* with the OECD principle of promoting regular monitoring and evaluation of policy and governance, while for the other (Brazil) it was assessed as *moderate*. There was found to be *moderate* to *full implementation* in all but one framework (Brazil), where implementation was considered *poor*. Similarly, *on-ground results* was assessed as *moderate* to *major changes evident* for five cases, although for one framework (Brazil) it was considered *poor*. *Policy impact* was varied, with three frameworks assessed as *strong*, and one as *very strong*, but in two cases the policy impact was considered *poor*.

Table presents the highest and lowest scoring principles against each of the four assessment criteria. Typically the three highest and three lowest scoring principles are shown, except where scores were drawn in which case more are included.

Table 2. Highest and lowest scoring principles against each of the criteria

CRITERIA	HIGHEST SCORING PRINCIPLES	LOWEST SCORING PRINCIPLES
Alignment	2 - Appropriate Scales with Basin Systems 10 - Stakeholder Engagement 5 - Produce and Share Data and Information 7 - Regulatory Frameworks	4 - Capacity 11 - Managing Trade-offs 3 - Policy Coherence 6 - Financing
Implementation	7 - Regulatory Frameworks 10 - Stakeholder Engagement 5 - Produce and Share Data and Information	3 - Policy Coherence 4 - Capacity 9 - Integrity and Transparency 6 - Financing 8 - Adopt and Implement Innovative Governance
On-ground Results	10 - Stakeholder Engagement 5 - Produce and Share Data and Information 12 - Monitoring & Engagement	3 - Policy Coherence 6 - Financing 9 - Integrity and Transparency 11 - Managing Trade-offs
Policy Impact	10 - Stakeholder Engagement 5 - Produce and Share Data and Information 7 - Regulatory Frameworks	3 - Policy Coherence 11 - Managing Trade-offs 8 - Adopt and Implement Innovative Governance

NOTE: The grey-scale matches the OECD key drivers of water governance as presented in Appendix 1: lighter for principles relating to enhancing the *effectiveness* of water governance; medium for principles relating to enhancing the *efficiency* of water governance; and darker for principles relating to enhancing *trust and engagement* in water governance.

We found that the OECD Principles relating primarily to enhancing the *'Effectiveness of water governance'* only scored highly twice and were amongst the lowest scores on six occasions. Notably, *policy coherence* was one of the lowest scoring principles against all four assessment criteria. OECD Principles relating primarily to enhancing the *'Efficiency of water governance'* scored highly seven times but were also amongst the lowest scores on five occasions. *Produce and share data and information* was one of the highest scoring principles against all four assessment criteria. OECD Principles relating primarily to enhancing *'Trust and engagement' in water governance* scored highly five times but were also amongst the lowest scores on five occasions. S*takeholder engagement* was one of the highest scoring principles against all four assessment criteria.

Looking across all the frameworks it is clear that *alignment* always scored higher than *implementation*, *on-ground results* and *policy impact*. Notably, we found that Appropriate Scales within Basin Systems (Principle 2) and Stakeholder Engagement (Principle 10) were both considered to be in *full alignment* with all the policy frameworks that we considered. On the other hand, Capacity (Principle 4), Managing Trade-offs (Principle 11), Policy Coherence (Principle 3) and Financing (Principle 6) were considered the least aligned with the frameworks we examined.

No principles where considered to be at *full implementation* for all the frameworks. *Implementation* of Regulatory Frameworks (Principle 7), Stakeholder Engagement (Principle 10) and Produce and Share Data and Information (Principle 5) were considered the best implemented, while Integrity and Transparency (Principle 9) and Policy Coherence (Principle 3) were the least implemented principles. There were no principles for which there were found to be *major changes evident* for all frameworks. Major changes were most evident in relation to Stakeholder Engagement (Principle 10), Produce and Share Data and Information (Principle 5) and Monitoring and Evaluation (Principle 12). The least change was found to have occurred in relation to Financing (Principle 6), Integrity and Transparency (Principle 9), Managing Trade-offs (Principle 11) and Regulatory Frameworks (Principle 7).

There were no principles for which we considered that there were *major impacts on policy* for all frameworks. Across the frameworks, the greatest policy impact was in relation to Stakeholder Engagement (Principle 10), Produce and Share Data and Information (Principle 5), Regulatory Frameworks (Principle 7) and Clear Roles and Responsibilities (Principle 1), whereas Policy Coherence (Principle 3), Managing Trade-offs (Principle 11) and Adopt and Implement Innovative Governance (Principle 8) were found to have had the least impact.

PART III - CONCLUSIONS AND RECOMMENDATIONS

3.1. Concluding notes from the analysis

In relation to the OECD principles, this study identified four main target areas for enhancing *effectiveness*, *efficiency*, and *trust and engagement* in water governance. In order of importance from the assessment, these were: *policy coherence (Principle 3); financing (Principle 6); managing trade-offs across users, rural and urban areas, and generations (Principle 11);* and *integrity and transparency* (Principle 9). The results of a qualitative analysis undertaken across the findings for each framework, with the objective of identifying factors needing future action in these four target areas, are presented below.

3.1.1. Policy Coherence as a key target for enhancing the 'Effectiveness' of water governance.

OECD Principle 3 states *"Encourage policy coherence through effective cross-sectoral co-ordination, especially between policies for water and the environment, health, energy, agriculture, industry, spatial planning and land use"* and identifies four ways to address this.[vii] This study found that *policy coherence* was the only OECD principle that was among the lowest scoring for all four criteria. It was also the lowest scoring principle overall.

The qualitative analysis revealed that factors contributing to lower levels of achievement in relation to Principle 3 include: a lack of national guidance on effective and consistent planning approaches; absence of land use policy; lack of coordination of policy and implementation between water and other policy areas such as the environment; misalignment of policy targets; differing mandates of national, state/regional and local government agencies, and infrastructure and sectoral entities; lack of integration between water quality and quantity in decision-making; disconnected approaches between management of services and resources; impact of changing goal posts on implementation; a shift back from decentralisation to re-centralisation; insufficient use of socio-economic data in water sector planning; overlaps and gaps in implementation despite clear roles and responsibilities; lack of integration of national and state information systems; difficulties implementing complex catchment plans which involve managing use, discharge and cumulative land use within limits; and challenges in coordinating across different scales in large and diverse countries.

While multi-level governance is a clear goal, it raises many challenges in communication, power-sharing and coherence. There is a need for innovative governance methods that better align policy objectives with values consistently across levels and scales.

3.1.2. Financing as a key target for enhancing the 'Efficiency' of water governance.

OECD Principle 6 states *"Ensure that governance arrangements help mobilise water finance and allocate financial resources in an efficient, transparent and timely manner"* and identifies five ways

to address this.[viii] However, this study found that *financing* was amongst the lowest scoring principles for alignment, implementation and on-ground results, and was the fourth lowest scoring principle overall.

The qualitative analysis revealed that factors contributing to lower levels of achievement in relation to Principle 6 include: awareness of problems with water finance but lack of clarity on how it will be addressed; lack of transparency in rationales for water pricing; reductions in funding compromising implementation of innovative practices already identified; implementation capacity restricted by the setting of low fees; lack of finance for restoring and rehabilitating polluted water resources; prioritisation of spending on infrastructure above other actions such as water demand management; and inaccessible data, declining data quality control and degrading monitoring systems.

Insufficient or ineffective financing of water management affects capacity and capability to implement reforms despite there being good legal and policy frameworks in place. To help address this, financing should be focused on more comprehensive water management which integrates water resource and infrastructure planning.

3.1.3. Managing Trade-offs Across Users, Rural and Urban Areas, and Generations as a key target for enhancing 'Trust and Engagement' in water governance.

OECD Principle 11 states *"Encourage water governance frameworks that help manage trade-offs across water users, rural and urban areas, and generations"* and identifies four ways to address this.[ix] However, this study found that *managing trade-offs* was amongst the lowest scoring principles for alignment, on-ground results, and policy impact, and was the third lowest scoring principle overall.

The qualitative analysis revealed that factors contributing to lower levels of achievement in relation to this principle include: under-emphasis of intergenerational equity; lack of specifically coordinated action with other sector policies; lack of integration of water management with mining and energy production as strategic water uses; insufficient socio-economic data used for water sector planning; decisions made in isolation by governments, or with river basin committees restricted to a secondary or advisory role despite commitments to decentralise decision-making; differences in institutional capacity across the country and across water management levels; limited government support to address capacity imbalances; lack of cross-sectoral coordination because different sectors are under different ministries; lack of consistent and comparable data and information to create a national picture of the state of water resources; and decisions being driven by today's priorities, particularly economic drivers, despite frameworks acknowledging future generations.

Clearly, questions of trade-offs are greater difficulties for basins under significant water stress, including those suffering from increasing rural-urban competition for water. Earlier investment in capacity building towards preparedness and adaptation skills can help address this objective.

3.1.4. Integrity and Transparency as a key target for enhancing trust and engagement in water governance.

OECD Principle 9 states *"Mainstream integrity and transparency practices across water policies, water institutions and water governance frameworks for greater accountability and trust in decision-making"* and identifies five ways to address this.[x] However, although *Stakeholder Engagement* appeared in the highest scoring group for all criteria and was the highest scoring principle overall, a key requisite for trust and engagement - *integrity and transparency* - was one of the lowest scoring principles for both implementation and on-ground results, and the second lowest scoring principle overall.

The qualitative analysis revealed that factors contributing to lower levels of achievement in relation to this principle include: there is much yet to be done to build trust, including in relation to trade-offs that are not always transparent; reductions in "red-tape" done in the name of efficiency have undermined trust in government processes; some national standards (e.g. for water quality) are leading to perceptions that the lowest common denominator standard applies everywhere; moving goal posts and reduced commitments to transparency in decision-making (especially *ad hoc* removal of responsibilities and functions of catchment management agencies) leading to stakeholder fatigue and reduced confidence in government; inconsistent commitment within jurisdictions to delegate decision making and the emergence of a power play between stakeholders and water experts; and limited policy evaluation and limited feedback mechanisms into law on a systematic or organisational level.

Increasing governmental commitment to longer-term goals, consistent formulation of long-lasting policies independent from political cycles, and communicating clearly to citizens the aims and measures to be taken, then delivering on them, can create more transparency and ensure greater integrity, leading to both better understanding of real problems and potential solutions, and to mutual commitment from governments and society.

3.2. Final recommendations and ways forward

From the assessment of each framework and the detailed analysis that produced the concluding remarks in the previous section, several areas are recommended for consideration in relation to the OECD Principles on Water Governance, organized around the three drivers. Far from any intention of exhausting this discussion, these suggestions aim to open ways for further exploration and debate.

3.2.1. Recommendations for improving 'Effectiveness' in water governance

Reinforcing a comprehensive approach to water management - A comprehensive and holistic approach needs to be reinforced, adopting more catchment-based approaches and integrating different levels of jurisdiction. An obvious area that deserves to be elevated in consideration by the relevant authorities is water and land management. Generally, concurrent consideration of some of the OECD Principles (e.g. Principles 2, 3, 5, 9 and 11) can help develop a clearer and broader understanding of the problems and the solutions.

Strengthening transboundary cooperation - The OECD principles appear to be primarily focused within national boundaries; but of course many problems appear across boundaries especially where water bodies span national or state jurisdictions. Although Principles 2 and 5 encourage the riparian cooperation and sharing of information between jurisdictions, the OECD Principles lack a mechanism to fully address the need for strengthened transboundary cooperation. There may, for example, be opportunities to link the Principles with the Convention on the Law of the Non-navigational Uses of International Watercourses (New York)[xi] and Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki)[xii] to achieve stronger collaborative governance. The case of the WFD linking water policies across Europe is illustrative. It has had an impact on international cooperation for water governance, revolutionised water law and policy in European countries, and triggered a general move towards better national principles and practices.

3.2.2. Recommendations for improving the 'Efficiency' of water governance

Filling the gap for weak national water policies - The Principles are more easily accepted if there is a governmental framework that incorporates them, however many nations lack efficient and effective water policies. What possibilities exist for supporting implementation of the OECD Principles in such circumstances? These are often the most critical cases, and they will eventually impact not only their own national issues within their border, but also 'export' problems across borders through unregulated services, unfair competitiveness, transboundary water sharing and environmental impacts, and in the market place. Building a 'community of (good) practice' would link countries that share similar governance philosophy, and also allow others that do not yet have robust national water policies to benefit from the OECD Principles.

Funding the whole water cycle – This study found that in many contexts there is awareness of problems with water finance but a lack of clarity on how they will be addressed. There is a general tendency to continue focusing on financing expansion of infrastructure above other actions such as water demand management. Inefficient financing of water management affects implementation of reforms, constrains innovation and hampers attempts to build the capacity needed for coming challenges. Concurrent consideration of all aspects of water management is advocated in order to better address the financial needs of the different dimensions and the system as a whole.

3.2.3. Recommendations for improving 'Trust and Engagement' in water governance

Networking around good practices - Current water problems in the world are not limited to nations, near borders or even regions – many have become global problems. A global shift of paradigm and effective application of the OECD Principles demands active networking to share good practices beyond borders and regions – beyond transnational – in other words, across the whole world. A reference example that also inspired this analysis is the UNESCO-IHP HELP programme which developed a method to share good practices and influence national and regional water policies.

National integrity and guidance with locally devolved decisions – More transparency in policy making may promote more accountability around water management. Considering Principle 11 for example – managing trade-offs – we can conclude that this is a paradigmatic case of the need to engage all the levels in the problem (from local communities to supra-national). This Principle is a good example of how the complexity of water problems demands holistic approaches and actions, including considerations of territorial, temporal and intergeneration continuity. For example, trade-offs between rural and urban needs are one of the major challenges the world faces and water management is at the core of the problem and the solution.

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APPENDIX 1

The 12 OECD Principles of Water Governance

Enhancing the *effectiveness* of water governance
1. Clearly allocate and distinguish roles and responsibilities for water policymaking, policy implementation, operational management and regulation, and foster co-ordination across these responsible authorities.
2. Manage water at the appropriate scale(s) within integrated basin governance systems to reflect local conditions, and foster co-ordination between the different scales.
3. Encourage policy coherence through effective cross-sectoral co-ordination, especially between policies for water and the environment, health, energy, agriculture, industry, spatial planning and land use.
4. Adapt the level of capacity of responsible authorities to the complexity of water challenges to be met, and to the set of competencies required to carry out their duties.
Enhancing the *efficiency* of water governance
5. Produce, update, and share timely, consistent, comparable and policy-relevant water and water-related data and information, and use it to guide, assess and improve water policy.
6. Ensure that governance arrangements help mobilise water finance and allocate financial resources in an efficient, transparent and timely manner.
7. Ensure that sound water management regulatory frameworks are effectively implemented and enforced in pursuit of the public interest.
8. Promote the adoption and implementation of innovative water governance practices across responsible authorities, levels of government and relevant stakeholders.
Enhancing *trust and engagement* in water governance
9. Mainstream integrity and transparency practices across water policies, water institutions and water governance frameworks for greater accountability and trust in decision-making.
10. Promote stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation.
11. Encourage water governance frameworks that help manage trade-offs across water users, rural and urban areas, and generations.
12. Promote regular monitoring and evaluation of water policy and governance where appropriate, share the results with the public and make adjustments when needed.

(Source: OECD, 2015a)

NOTE: The grey-scale matches the OECD key drivers of water governance: lighter for principles relating to enhancing the *effectiveness* of water governance; medium for principles relating to enhancing the *efficiency* of water governance; and darker for principles relating to enhancing *trust and engagement* in water governance.

APPENDIX 2

Adapted Likert Scale descriptors for scoring each policy framework

Alignment

1. No alignment
2. Poor = *Some common objectives*
3. Moderate = *Common objectives and measures of policy proposed*
4. Good/Strong = *Previous experience and well aligned policy ongoing*
5. Full alignment = *Policy framework matching all the objectives of the OECD Principle*

Implementation

1. No implementation
2. Poor = *Minimally addressed*
3. Moderate = *Consistently included with some measures proposed*
4. Good/Strong = *Under implementation through measures in place*
5. Full alignment = *Implemented with evaluated results/good practice)*

On-ground results

1. No evidence of change
2. Poor = *Involving major agent of change (institutional or other)*
3. Moderate = *Involving different agencies and stakeholders*
4. Good/Strong = *Involving multi-level platforms of participation and decision-making*
5. Major changes evident = *Implemented with evaluated results/good practice*

Policy Impact

1. No impact
2. Poor = *Considered and being implemented in the ongoing water policy*
3. Moderate = *Considered for implementation in other policies (transversal impact)*
4. Good/Strong = *Impacting different institutional levels of governance (vertical impact, bottom-up and top-down)*
5. Very strong impact = *Producing political change after evaluation (e.g. new legislation, regulatory measures, institutional re-structuring or innovative institutional arrangements)*

APPENDIX 3

Results of scoring for each framework

FRAMEWORKS / OECD PRINCIPLES	Criteria	Europe WFD	Australia NWI	New Zealand	Brazil	South Africa	Lisbon Charter *(Illustrative case: Portugal)*
Principle 1 ***(Clear Roles and Responsibilities)***	a) Alignment	4	5	5	5	4	5
	b) Implementation	2	4	5	4	3	4
	c) On-ground Results	2	4	4	3	3	4
	d) Policy Impact	3	4	4	4	3	4
Principle 2 ***(Appropriate Scales within Basin Systems)***	a) Alignment	5	5	5	5	5	5
	b) Implementation	3	5	5	3	3	3
	c) On-ground Results	3	4	4	3	3	3
	d) Policy Impact	4	4	4	3	3	3
Principle 3 ***(Policy Coherence)***	a) Alignment	4	4	4	5	3	5
	b) Implementation	3	4	3	3	3	4
	c) On-ground Results	3	4	4	3	2	3
	d) Policy Impact	3	3	3	4	2	3
Principle 4 ***(Capacity)***	a) Alignment	4	5	4	4	2	5
	b) Implementation	3	4	5	2	2	4
	c) On-ground Results	3	4	5	3	1	4
	d) Policy Impact	3	3	4	3	2	5
Principle 5 ***(Produce and Share Data and Information)***	a) Alignment	5	5	5	5	4	5
	b) Implementation	3	5	4	3	3	5
	c) On-ground Results	3	5	5	3	2	4
	d) Policy Impact	4	4	3	4	2	5
Principle 6 ***(Financing)***	a) Alignment	3	5	4	5	3	5
	b) Implementation	2	4	4	3	3	4
	c) On-ground Results	2	4	3	3	2	4
	d) Policy Impact	2	4	4	3	2	4
Principle 7 ***(Regulatory Frameworks)***	a) Alignment	5	5	5	5	4	5
	b) Implementation	3	5	5	4	3	4
	c) On-ground Results	3	4	3	3	1	5
	d) Policy Impact	4	4	4	3	2	5
Principle 8 ***(Adopt and Implement Innovative Governance)***	a) Alignment	4	5	5	5	3	5
	b) Implementation	3	4	4	3	1	5
	c) On-ground Results	3	4	3	3	2	5
	d) Policy Impact	3	3	3	3	1	5
Principle 9 ***(Integrity and Transparency)***	a) Alignment	4	5	5	4	3	5
	b) Implementation	2	3	5	2	2	4
	c) On-ground Results	2	3	4	3	2	4
	d) Policy Impact	3	3	4	2	2	4
Principle 10 ***(Stakeholder Engagement)***	a) Alignment	5	5	5	5	5	5
	b) Implementation	3	4	5	3	4	4
	c) On-ground Results	3	4	4	3	4	4
	d) Policy Impact	3	4	5	3	4	4
Principle 11 ***(Managing Trade-offs)***	a) Alignment	2	5	4	5	3	5
	b) Implementation	2	4	4	3	3	4
	c) On-ground Results	2	4	4	3	2	3
	d) Policy Impact	2	4	4	3	2	3
Principle 12 ***(Monitoring and Evaluation)***	a) Alignment	5	5	4	3	4	5
	b) Implementation	3	5	4	2	3	5
	c) On-ground Results	3	5	3	2	4	5
	d) Policy Impact	4	4	4	2	2	5

END NOTES

[i] See { HYPERLINK "http://www.catchmentbasedapproach.org/" } for further background on the Catchment Based Approach.

[ii] The full agreement can be found at: { HYPERLINK "http://www.nwc.gov.au/__data/assets/pdf_file/0008/24749/Intergovernmental-Agreement-on-a-national-water-initiative.pdf" }.

[iii] New Zealand's RMA was seen as a model when the South African Water Act of 1998, discussed below, was being developed.

[iv] Further information about the SINGREH can be found in Silva et al. (2017), ANA (2016), Barbosa et al. (2016), Sousa Júnior et al. (2016), OECD (2015c), Veiga & Magrini (2013), Ribeiro et al. (2012), among others.

[v] The Lisbon Charter is available at: { HYPERLINK "http://www.iwa-network.org/downloads/1428787191-Lisbon_Regulators_Charter.pdf" }.

[vi] For example, see { HYPERLINK "http://www.mfe.govt.nz/fresh-water/freshwater-management-reforms/clean-water-package-2017" }.

[vii] To encourage policy coherence through effective cross-sectoral co-ordination, especially between policies for water and the environment, health, energy, agriculture, industry, spatial planning and land use, the OECD suggests: (1) Encouraging coordination mechanisms within government; (2) fostering co-ordinated management of use, protection and clean-up of resources, (3) identifying, assessing and addressing barriers; and (4) providing incentives and regulations to mitigate conflicts among sectoral strategies. See OECD 2015a for full details of these mechanisms.

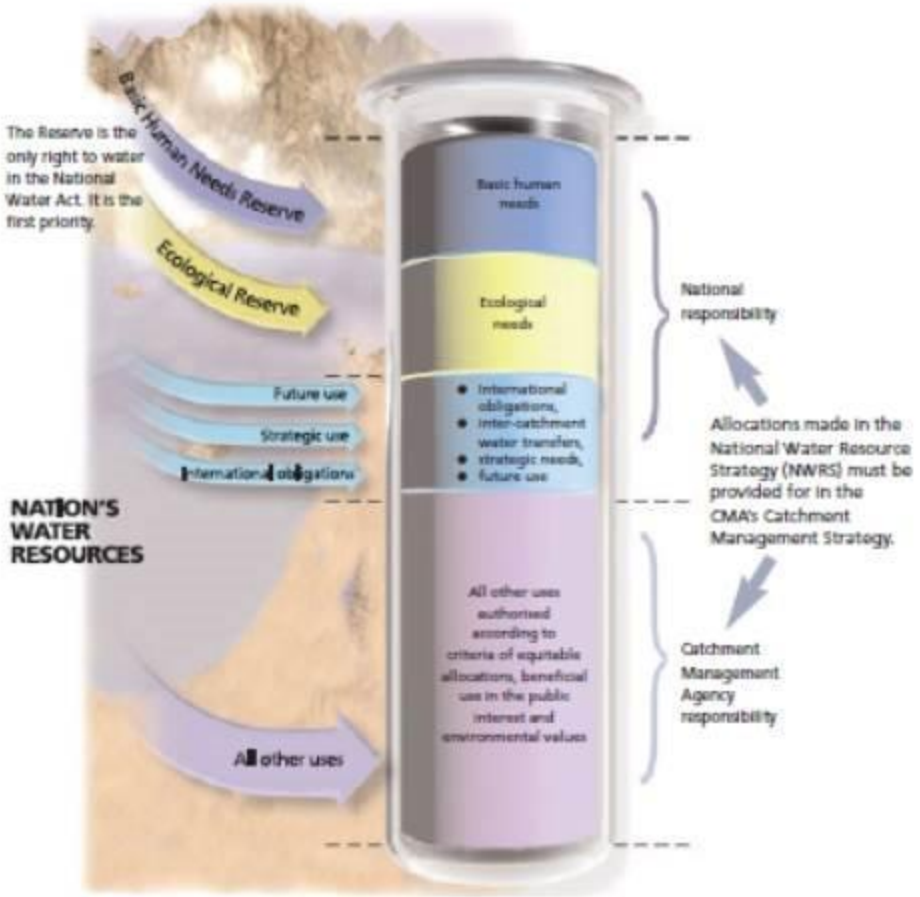
[viii] To ensure that governance arrangements help mobilise water finance and allocate financial resources in an efficient, transparent and timely manner, the OECD suggests: (1) Promoting governance arrangements that help raise revenue for the necessary functions; (2) sector reviews and strategic financial planning to help ensure financing; (3) transparent practices for budgeting and accounting; (4) mechanisms for efficient and transparent allocation of funds; (5) minimising unnecessary administrative burdens. See OECD 2015a for full details of these mechanisms.

[ix] To encourage water governance frameworks that help manage trade-offs across water users, rural and urban areas, and generations, the OECD suggests: (1) Promoting non-discriminatory participation in decision-making; (2) Empowering local authorities and users to identify and address barriers; (3) promoting public debate on the risks and costs; and (4) encouraging evidence-based assessment of the distributional consequences of water-related policies. See OECD 2015a for full details of these mechanisms.

[x] Mainstream integrity and transparency practices across water policies, water institutions and water governance frameworks for greater accountability and trust in decision-making, the OECD suggests: (1) Promoting legal and institutional frameworks that hold decision-makers to account; (2) encouraging norms, codes of conduct or charters on integrity and transparency; (3) establishing clear accountability and control mechanisms; (4) diagnosing and mapping existing or potential drivers of corruption; and (5) adopting multi-stakeholder approaches, tools and action plans to address water integrity and transparency gaps. See OECD 2015a for full details of these mechanisms.

[xi] Convention on the Law of the Non-navigational Uses of International Watercourses 1997, adopted by the General Assembly of the United Nations on 21 May 1997. Available at { HYPERLINK "http://legal.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf" }

[xii] Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Helsinki, 17 March 1992. Available at { HYPERLINK "https://www.unece.org/fileadmin/DAM/env/water/pdf/watercon.pdf" }


The Reserve is the only right to water in the National Water Act. It is the first priority.
Basic Human Needs Reserve
Ecological Reserve
Future use
Strategic use
International obligations
NATION'S WATER RESOURCES
All other uses
Basic human needs
Ecological needs
International obligations,
inter-catchment water transfers,
strategic needs,
future use
All other uses authorised according to criteria of equitable allocations, beneficial use in the public interest and environmental values
National responsibility
Allocations made in the National Water Resource Strategy (NWRS) must be provided for in the CMA's Catchment Management Strategy.
Catchment Management Agency responsibility